DRAFT
SECTION 1135 ECOSYSTEM RESTORATION REPORT AND ENVIRONMENTAL ASSESSMENT

SARASOTA BAY
SARASOTA COUNTY, FLORIDA

DRAFT
ENVIRONMENTAL ASSESSMENT

U.S. ARMY CORPS OF ENGINEERS
JACKSONVILLE DISTRICT

AUGUST 2000

SARASOTA BAY ENVIRONMENTAL RESTORATION
SARASOTA, FLORIDA
FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the planning document and the Environmental Assessment of the considered action. Based on information analyzed in the Environmental Assessment, reflecting the pertinent data obtained from cooperating Federal and State agencies having jurisdiction by law and/or special expertise, and from the interested public, I conclude that the considered action will have no significant impact on the quality of the human environment.

Reasons for this conclusion are, in summary:

a. Creating a total of 43.6-acres of habitat to include: 7.1-acres of uplands; 0.2-acres of high marsh; 24.9-acres of low marsh and mangroves; 9.4-acres of tidal lagoon and mud flats; 0.6-acres of beach renourishment; and reclamation of 1.4-acres of low marsh, and

b. Restoring fish and wildlife habitat in Sarasota Bay and Venice Inlet, and

c. Improving the water quality, and

d. Potential enhancement of five Federally listed endangered or threatened species; the piping plover, the Western Indian manatee, the green sea turtle, the Hawksbill sea turtle, and the loggerhead sea turtle, as well as many State listed species of special concern, and

e. Development of environmental educational opportunities, and

f. Historic properties included in or eligible for inclusion in the National Register of Historic Places will be affected by the proposed restoration project. Project features that will help in the preservation of the site, however, will mitigate adverse effects. The State Historic Preservation Officer concurred with a no adverse effect determination.

Measures to prevent or minimize adverse affects to threatened and endangered species will be implemented during construction in accordance with the U.S. Fish and Wildlife Service Coordination Act Report, February 24, 2000.

In consideration of the information in the Environmental Assessment, which is summarized above, I find that the considered action is not a major Federal action significantly impacting the human environment as stated in the National Environmental Policy Act and therefore, the proposed action does not require an Environmental Impact Statement.

_____ _____

Date

Joe R. Miller
Colonel, Corps of Engineers
Commanding

Draft Environmental Assessment
Sarasota Bay Ecosystem Restoration
Sarasota Bay
Sarasota County, Florida

1.00 Project Purpose. The purpose of the proposed action is to ecologically restore the degraded habitat on six disposal islands (Big Edwards Island, Skiers' Island, the Bird Colony Islands, the Jim Neville Marine Preserve, Palmer Point Park, and Snake Island) in Sarasota Bay. The proposed restoration of these islands and the creation of new habitat will be accomplished through the removal of exotic vegetation, excavating tidal channels, and planting native vegetation.

2.00 Location. Sarasota Bay is located on the west central coast of Florida between Tampa and Venice, Florida. The system is bordered by a chain of coastal barrier islands (Anna Maria Island, Longboat Key, Lido Key, Siesta Key, and Casey Key). The six priority disposal islands for this project are located in lower Sarasota Bay, see Figure 1. The following is a location description of the proposed project disposal islands from south to north:

- Snake Island is the southernmost project disposal island located at the Venice Inlet. Snake Island is approximately 2 acres in size and is owned by the West Coast Inland Navigation District.

- Palmer Point Park is a 33-acre disposal island owned by Sarasota County. Palmer Point Park is located in lower Sarasota Bay (Little Sarasota Bay) toward the north end of Casey Key. The project area for this island includes approximately 5 acres of the southeast portion of the island.

- Jim Neville Marine Preserve, a 35-acre preserve owned by Sarasota County, is located directly north of Palmer Point Park, toward the southern end of Siesta Key.

- Skier's Island is an 8-acre disposal island, which is owned by the West Coast Inland Navigation District, located in Roberts Bay.

- The Bird Colony Islands, covering approximately 2 acres, are located across the Gulf Intracoastal Waterway (GIWW) to the northeast of Skiers Island in Roberts Bay.

- Big Edwards Island is a 6-acre disposal island owned by Sarasota County. Big Edwards Island is located in Roberts Bay just south of the Siesta Key Bridge.

2.01 Sarasota Bay was designated as a priority water body by the U.S. Environmental Protection Agency (EPA) in Section 320 of the Clean Water Act, as amended in 1987. In 1989, the Sarasota Bay National Estuary Program (SBNEP) completed a comprehensive technical assessment of the estuarine system in Sarasota Bay, *Sarasota Bay - The Voyage to Paradise Reclaimed: The Comprehensive Conservation management Plan for Sarasota Bay* (Reference 1). The findings of the assessment documented problems within the bay including the loss of approximately 40-percent of historical intertidal wetlands and 30-percent of historical seagrass

beds. These habitats are critical nursery and foraging habitats for a variety of economically important fisheries species including snook, red drum, spotted sea trout, and mullet.

The study is consistent with the SBNEP's *Comprehensive Conservation and Management Plan*. Specifically, the proposed project will help implement Action Items 1.2 (enhance, restore and create wetlands throughout the bay region) and 1.7 (remove exotic plants from wetlands). This project is especially beneficial because of the limited opportunity for restoring lands in the study area resulting from extensive coastal development. The project is also consistent with Sarasota County's Comprehensive Plan, which supports the implementation of the SBNEP's *Comprehensive and Management Plan* (Policy 2.1.6), disposal island restoration (Policy 2.2.2) and the restoration of productive native habitat.

3.00 Alternatives. For each of the disposal islands, several alternatives have been identified to accomplish the restoration objective of the proposed project. These alternatives are discussed in detail in Section 2.0 of the *Sarasota Bay Ecosystem Restoration Report*. Common to all alternatives are combinations of the following components:

- Removal of exotic vegetation in both the upland and wetland areas.
- Creation of coastal upland habitats that will provide resting and feeding areas for native and migratory birds. Upland restoration areas will include coastal hammock vegetation as well as native sub-tropical trees and shrubs that will create diverse habitats.
- Creation of high and low marsh areas, including mangroves, that will function as nursery grounds for many fish and shellfish, as well as provide a benefit to water quality through the assimilation of nutrients and by reduction of erosion.
- Creation of tidal lagoons or open water areas that will provide foraging areas for bottom feeding fish, shorebirds, and invertebrates. These areas will also maximize the "edge effect" of adjacent marsh systems, in addition to providing flow, in several of the alternatives, through the islands.

Tables 1 – 5 provide a summary of the evaluation analysis for the concepts developed for each disposal island. There is no table for the Bird Colony Islands since the analysis consisted of only the Recommended Plan and the No-Action alternative.

3.01 Big Edwards Island. For Big Edwards Island, four concepts and the No-Action alternative were evaluated. Concept 1 (Figure 2) involves retaining over half the island as upland restoration and lowering grades to intertidal elevations to support marsh grasses and mangroves. Concepts 2, 3, and 4 (Figures 3 – 5) involve various combinations of upland restoration, high marsh, low marsh and open water/tidal lagoons. In addition, Concepts 3 and 4 provide recreational trails for public use. Alternative 4 was selected as the Recommended Plan because of the maximum habitat diversity that it creates. In addition, this concept incorporates the upland restoration/enhancement areas in the areas that are currently used for public use and allows for a recreational trail to be incorporated into the design.

Table 1 - Big Edwards Island – Evaluation Matrix

Environmental Factor	Concept 1	Concept 2	Concept 3	Concept 4 Preferred	No-Action Status Quo
Habitat Types Created (Acres)*	4.4	4.3	4.5	4.0	0
-Upland Restoration	2.7	1.7	1.3	1.7	0
-High Marsh	0.3	0.2	1.0	0.2	0
-Low Marsh/Mangrove	1.4	1.9	1.8	1.6	0
-Tidal Lagoon/Mud Flats	0	0.5	0.4	0.5	0
Federally Protected Species	No Impact	No Impact	No Impact	No Impact	No Impact
Fish and Wildlife Resources	Create potential nesting & migratory bird habitat Low Marsh-potential fisheries habitat	Create potential nesting & migratory bird habitat. Low Marsh-potential fisheries habitat. Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds and invertebrates.	Create potential nesting & migratory bird habitat Low Marsh-potential fisheries habitat	Create potential nesting & migratory bird habitat Low Marsh-potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds and invertebrates.	Continued degradation of uplands & low marsh by exotic vegetation.
Removal of Exotic Vegetation	Yes	Yes	Yes	Yes	No
Shoreline Erosion	No Impact	No Impact	No Impact	No Impact	No Impact
Water Quality	Improve, Create low/high marsh wetlands	Improve, Create low/high marsh wetlands	Improve, Create low/high marsh wetlands	Improve, Create low/high marsh wetlands	No Impact
Cultural Resources	No Impact	No Impact	No Impact	No Impact	No Impact
Recreation	Upland areas provide public access to the island for passive recreation	Upland areas provide public access to the island for passive recreation	Provides boardwalk, overlooks, and educational signage for more intense public use	Provides trail/boardwalk, and educational signage for more intense public use	Upland areas provide public access to the island for passive recreation
Navigation	No Impact	No Impact	No Impact	No Impact	No Impact
Public Acceptance**	Moderate	Moderate	High	High	Moderate
Economics (Cost Estimate)	$800,000 - $1,350,000	$700,000 - $1,150,000	$700,000 - $1,150,000	$650,000 - $1,100,000	N/A

* Includes additional acreage created due to restoration. Does not include existing habitat.

** Public Acceptance based on comments received as part of the public involvement efforts conducted for this project.

Table 2 - Skiers' Island – Evaluation Matrix

Environmental Factor	Concept 1	Concept 2	Concept 3	Concept 4 Preferred	No-Action Status Quo
Habitat Types Created (Acres)* -Upland Restoration -High Marsh -Low Marsh/Mangrove -Tidal Lagoon/Mud Flats	5.6 2.9 0 2.7 0	6.1 2.0 0 3.7 0.4	5.3 2.5 0 2.0 0.8	5.3 2.5 0 1.8 1.0	0 0 0 0 0
Federally Protected Species	No Impact	No Impact	No Impact	No Impact	No Impact
Fish and Wildlife Resources	Create potential nesting & migratory bird habitat Low Marsh-potential fisheries habitat	Create potential nesting & migratory bird habitat Low Marsh-potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Create potential nesting & migratory bird habitat Low Marsh-potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Create potential nesting & migratory bird habitat Low Marsh-potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Continued degradation of uplands & low marsh by exotic vegetation.
Removal of Exotic Vegetation	Yes	Yes	Yes	Yes	No
Shoreline Erosion	Reduce	Reduce	Reduce	Reduce	No Change
Water Quality	Improve, Create low marsh wetlands	Improve, Create low marsh wetlands	Improve, Create low marsh wetlands and tidal lagoon provides east/west flow	Improve, Create low marsh wetlands and tidal lagoon provides east/west & north/south flow	No Improvement
Cultural Resources	No Impact	No Impact	No Impact	No Impact	No Impact
Recreation	Maintains Ski-ability	Maintains Ski-ability	Maintains Ski-ability	Maintains Ski-ability. Public access to upland area	Maintains Ski-ability. Public access to upland area
Navigation	No Impact	No Impact	No Impact	No Impact	No Impact
Public Acceptance**	Moderate	High	High	High	Moderate
Economics (Cost Estimate)	$500,000–$750,000	$500,000–$800,000	$500,000–$800,000	$550,000-$850,000	N/A

* Includes additional acreage created due to restoration. Does not include existing habitat.

** Public Acceptance based on comments received as part of the public involvement efforts conducted for this project.

Table 3 - Jim Neville Marine Preserve – Evaluation Matrix

Environmental Factor	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5 Preferred	No-Action Status Quo
Habitat Types Created (Acres)* -Upland Restoration -High Marsh -Low Marsh/Mangrove -Tidal Lagoon/Mud Flats	27.1 2.0 0 17.9 7.2	27.0 2.0 0 18.9 6.1	26.7 6.9 9.3 10.5 0	28.6 2.0 0 16.6 10.0	27.5 2.0 0 17.6 7.9	0 0 0 0 0
Federally Protected Species	Benefit to the Piping Plover, enhances existing habitat	Benefit to the Piping Plover, enhances existing habitat	Benefit to the Piping Plover, enhances existing habitat	Benefit to the Piping Plover, enhances existing habitat	Benefit to the Piping Plover, enhances existing habitat	Exotic vegetation may continue to reduce habitat for the Piping Plover
Fish and Wildlife Resources	Create potential nesting & migratory bird habitat. Low marsh– potential fisheries habitat. Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Create potential nesting & migratory bird habitat. Low marsh– potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Create potential nesting & migratory bird habitat. Low marsh – potential fisheries habitat	Create potential nesting & migratory bird habitat. Low marsh – potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Create potential nesting & migratory bird habitat. Low marsh– potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Exotic vegetation may continue to reduce habitat
Removal of Exotic Vegetation	Yes	Yes	Yes	Yes	Yes	No
Shoreline Erosion	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Water Quality	Improve, create low marsh wetland	Improve, create low marsh wetland	Improve, create low/high marsh wetland	Improve, create low marsh wetland	Improve, create low marsh wetland	No Impact
Cultural Resources	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Recreation	Limited public access	Limited public access	Limited public access	Limited public access	Limited public access	Limited public access
Navigation	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Public Acceptance**	Moderate	Low	Low	High	High	Low
Economics (Cost Estimate)	$2,450,000 - $3,950,000	$2,400,000 - $3,850,000	$1,050,000 - $1,650,000	$2,500,000 - $4,100,000	$2,500,000 - $4,050,000	N/A

* Includes additional acreage created due to restoration. Does not include existing habitat.

** Public Acceptance based on comments received as part of the public involvement efforts conducted for this project.

Table 4 - Palmers Point Park – Evaluation Matrix

Environmental Factor	Concept 1	Concept 2	Concept 3 Preferred	Concept 4	No-Action Status Quo
Habitat Types Created (Acres)*	3	2.9	3	2.8	0
-Upland	0.3	0.4	0	0	0
-High Marsh	0.2	0	0	0	0
-Low Marsh/Mangrove	1.6	1.7	3	1.4	0
-Tidal Lagoon/Mud Flats	0.9	0.8	0	1.4	0
Federally Protected Species	Benefit to the Piping Plover, enhances existing habitat	Benefit to the Piping Plover, enhances existing habitat	Benefit to the Piping Plover, enhances existing habitat	Benefit to the Piping Plover, enhances existing habitat	Exotic vegetation may continue to reduce habitat for the Piping Plover
Fish and Wildlife Resources	Create potential nesting & migratory bird habitat. Low marsh– potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Create potential nesting & migratory bird habitat. Low marsh– potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Create potential nesting & migratory bird habitat. Low marsh – potential fisheries habitat	Create potential nesting & migratory bird habitat. Low marsh- potential fisheries habitat Tidal lagoon creates feeding grounds for bottom feeding fish, shorebirds, and invertebrates.	Exotic vegetation may continue to reduce habitat
Removal of Exotic Vegetation	Yes	Yes	Yes	Yes	No
Shoreline Erosion	Reduce	Reduce	Reduce	Reduce	No Impact
Water Quality	Improve, Create low/high marsh wetlands	Improve, Create low marsh wetlands	Improve, Create low marsh wetlands	Improve, Create low marsh wetlands. Tidal lagoon provides water flow	No Impact
Cultural Resources	No Impact	No Impact	No Impact	No Impact	No Impact
Recreation	No Impact	No Impact	No Impact	No Impact	No Impact
Navigation	No Impact	No Impact	No Impact	No Impact	No Impact
Public Acceptance**	Moderate	High	Moderate	Moderate	Low
Economics (Cost Estimate)	$300,000 - $500,000	$250,000 - $450,000	$250,000 - $450,000	$300,000 - $500,000	N/A

* Includes additional acreage created due to restoration. Does not include existing habitat.

** Public Acceptance based on comments received as part of the public involvement efforts conducted for this project.

Table 5 - Snake Island – Evaluation Matrix

Environmental Factor	Concept 1	Concept 2	Concept 3	Concept 4 Preferred	No-Action Status Quo
Habitat Types Created (Acres)*	1.9	1.4	3.6	3.8	0
-Upland	0	0.4	0.5	0.9	0
-High Marsh	0	0.2	0	0	0
-Low Marsh/Mangrove	1.9	0.8	1.4	0.9	0
-Low Marsh Reclamation	0	0	1.7	1.4	0
-Unconsolidated Shore	0	0	0	0.6	0
Federally Protected Species	No Impact	No Impact	No Impact	No Impact	No Impact
Fish and Wildlife Resources	Creates low marsh wetlands for bird habitat and fisheries	Creates potential nesting & migratory bird habitat. Low marsh-potential fisheries habitat.	Creates potential nesting & migratory bird habitat. Low marsh/reclamation area potential fisheries habitat	Creates potential nesting & migratory bird habitat. Low marsh/reclamation area potential fisheries habitat	Continued degradation of uplands & low marsh by exotic vegetation.
Removal of Exotic Vegetation	Yes	Yes	Yes	Yes	No
Shoreline Erosion	Reduce	Reduce	Reduce & regain some lost acreage	Reduce & regain some lost acreage	Erosion of the island will continue
Water Quality	Improve, Create low marsh wetlands & stabilize erosion	Improve, Create low marsh wetlands & stabilize erosion	Improve, Create low marsh wetlands & stabilize erosion	Improve, Create low marsh wetlands & stabilize erosion	Worsen, continued erosion of the island
Cultural Resources	Create adverse impact to archaeological site	Shoreline stabilization will help preserve archeological site.	Shoreline stabilization will help preserve archeological site.	Shoreline stabilization will help preserve archeological site.	Continued erosion and degradation to archeological site.
Recreation	Limit public access	Public access provided to upland area. Beach remains intact for public use.	Public access provided to upland area through boardwalk. Cove provides boat parking area.	Public access provided to upland area adjacent to beach. Beach area potentially expanded.	Public access currently exists.
Navigation	Reduced channel maintenance, less erosion	Reduced channel maintenance, less erosion	Reduced channel maintenance, less erosion	Reduced channel maintenance, less erosion	Continued need for channel maintenance as a result of erosion
Public Acceptance**	Low	Moderate	Low	High	High
Economics (Cost Estimate)	$250,000 - $400,000	$200,000 - $350,000	$300,000 - $500,000	$200,000 - $350,000	

* Includes additional acreage created due to restoration. Does not include existing habitat.

** Public Acceptance based on comments received as part of the public involvement efforts conducted for this project.

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3.02 Skiers' Island. For Skiers' Island, four concepts and the No-Action alternative were evaluated. Concept 1 (Figure 6) involves both upland restoration and the creation of low marsh/mangrove areas. Concepts 2, 3, and 4 (Figures 7 – 9) involve a combination of upland restoration, creation of low marsh/mangroves, and creation of varying amounts of open water/tidal lagoons. Concept 4 was selected as the Recommended Plan because of the maximum habitat diversity that it creates. This concept also maximizes the beneficial "edge effect" of the open water/tidal lagoon areas on the adjacent low marsh and mangrove systems, as well as providing an opportunity for water to circulate through the island.

3.03 Bird Colony Islands. The Recommended Plan for the Bird Colony Islands is to provide shoreline armoring along the Intracoastal side of the islands to prevent further erosion. No earthwork is proposed on the islands. This concept was evaluated against the No-Action alternative. As the Recommended Plan, this concept protects existing critical bird nesting habitat that has been documented on these islands from further erosion.

3.04 Jim Neville Marine Preserve. For the Jim Neville Marine Preserve, five concepts (Figures 10 – 14) and the No-Action alternative were evaluated. Concepts 1, 2, 4 and 5 are very similar and involve minimal upland restoration, extensive low marsh/mangrove creation and various amounts of open water/tidal lagoon areas. Concept 4 involves the greatest amount of open water/tidal lagoon areas providing both east/west and north/south flow through the island. Concept 5 (the Recommended Plan) involves a similar amount of flow through the island; however, it does not provide complete east/west tidal lagoons across the island. Concept 1 and Concept 2 do not provide a either the east/west or north/south tidal lagoon systems. However, Concept 1 does provide a tidal lagoon connection between the northern and southern portions of the island. Concept 3 involves extensive upland restoration, high marsh areas, and low marsh mangrove areas. Concept 5 was selected as the Recommended Plan because it provides a diversity of habitats, allows for the historical sheet flow over the island during high tides, includes an extensive tidal lagoon system that maximizes the "edge effect" of the adjacent low marsh and mangrove systems, and allows water to circulate throughout the island. The Recommended Plan provides the greatest benefits while minimizing the impacts to the existing mangrove system and unique saltern areas found on the island.

3.05 Palmer Point Park. For Palmer Point Park, four concepts (Figures 15 –18) and the No-Action alternative were evaluated. Concepts 1, 2, and 4 involve some small upland restoration areas, low marsh/mangroves and open water/tidal lagoon systems. Concept 3 involves the creation of low marsh/mangroves in the project area. Concept 3 was selected as the Recommended Plan because it will benefit from the opportunity of diversity of the adjacent upland areas in the park, while minimizing impacts to the existing mangroves and salterns located adjacent to the project site. This concept also minimizes maintenance through the

elimination of the small upland area and reduces the potential for stagnant water and therefore mosquitoes with the elimination of the tidal lagoon.

3.06 Snake Island. For Snake Island, four concepts and the No-Action alternative were evaluated. Concept 1 (Figure 19) involves lowering the grade of the entire island to create a low marsh/mangrove area. Concept 2 (Figure 20) includes a upland enhancement area, a high marsh area, and surrounding low marsh/mangroves. Concept 3 (Figure 21) includes an upland enhancement area and surrounding low marsh/mangroves with an area for low marsh reclamation on the west side of the island. Concept 4 (Figure 22) was selected as the Recommended Plan. It is similar to Concept 3, but includes a much larger upland enhancement area to support the existing amount of public use.

4.00 Description of the Affected Environment. Sarasota Bay is a classic coastal lagoon system and is located on the central west coast of Florida between Tampa Bay and Venice, Florida. The system is bordered to the west by a chain of substantially developed coastal barrier islands (Anna Maria Island, Longboat Key, Lido Key, Siesta Key, and Casey Key) and to the east by the City of Sarasota mainland. Sarasota Bay is designated as a Class II – Outstanding Florida Water (OFW) except for the area directly east of the Intracoastal Waterway in Sarasota County, which is designated as a Class III OFW.

Big Edwards Island

Big Edwards Island is a 6-acre island owned by Sarasota County. It is the northernmost project disposal island, located in Roberts Bay immediately south of the Siesta Key Bridge. Historically, Big Edwards Island was originally comprised of two small mangrove islands that were utilized for disposal of dredged material from previous channel dredging operations, including the construction of the GIWW. Big Edwards Island is about 550 feet north-to-south and 400 feet east-to-west. The topography of this island includes a relatively narrow perimeter berm enclosing an area where dredged material was placed during the dredging of the GIWW. The elevation of the perimeter berm generally varies from 12 to 13 feet MSL. The ground elevations of the interior portion of the island range from 5 to 17 feet MSL. The disposal material on Big Edwards Island consists of fine sand with varying amounts of shell and limestone rubble (Figure 23).

Skiers' Island

Skiers' Island is an 8-acre island owned by the West Coast Inland Navigation District. It is about 1250 feet long and varies in width from 400 feet at the northern end to 200 feet toward the southern end. Natural ground elevations on the island range from 7 feet MSL to 0 MSL. Historically, the area that is now Skiers' Island was located in the open waters of Roberts Bay, an estimated 600 feet offshore from Siesta Key. The dredged material from the construction of the GIWW was deposited on bay bottom to create the disposal island. The dredged material on Skiers' Island predominately consists of shell and limestone rubble

with some fine sands. A deep-water channel surrounds Skiers' Island and is currently used by boaters for water skiing. In the past, Skiers' Island has been known for its importance as a colonial bird nesting site. However in recent years, few active nesting sites have been documented there (Figure 24).

The Bird Colony Islands

The Bird Colony Islands are four small islands, approximately two acres in size located east of the GIWW north of Skiers' Island in Roberts Bay. The Bird Colony Islands constitute one of the most significant bird colonies along Florida's west coast and have suffered substantial erosion primarily from large boat wakes associated with their close proximity to the GIWW (Figure 25).

Jim Neville Marine Preserve

Jim Neville Marine Preserve is a 35-acre preserve owned by Sarasota County. This island is located to the west of the GIWW toward the southern end of Siesta Key. The former Midnight Pass is located to the west of the preserve. The southern area of the disposal island has gentle topography with a slight ridge running in the northwest to southeast direction. The highest point of this area is elevation 7 feet MSL. The northern portion of the island has gentle topography with a high point of 10.5 feet MSL located near the north end. Historically, a large mangrove island and a small area of adjoining open waters of Little Sarasota Bay occupied the area that is now Jim Neville Marine Preserve. During past dredging and the construction of the GIWW, the dredged material was deposited over much of the eastern portions of the island and adjacent bay waters. This created the present characteristic of the island which is an upland area, slightly elevated above surrounding mangroves. The dredged material on the Jim Neville Marine Preserve predominately consists of a mix of fine sands, shell fragments, limestone, phosphate, and silt (Figure 26).

Palmer Point Park

Palmer Point Park is a 33-acre park owned by Sarasota County. It is located at the north end of Casey Key. Palmer Point Park has very little topography with the highest point at elevation 4 feet MSL. Prior to the placement of dredge material, Palmer Point Park consisted of a narrow strip of mangrove that extended from the northern tip of Casey Key into the adjoining waters of Little Sarasota Bay. Dredged material was also placed in the bay waters immediately south of the original mangrove strip east of the island. The dredged material on Palmer Point Park predominately consists of primarily fine sands with varying amounts of shell fragments (Figure 27).

Snake Island

Snake Island is the southernmost project disposal island, located at the Venice Inlet. This island was originally more than 3 acres in size but over the years, this island has decreased to approximately 2 acres. The elevations of the interior portion of the island range from 2 feet MSL to 7 feet MSL. According to 1948 aerial photography, the area that is now Snake Island formed approximately the

southern one-quarter of an elongated beach ridge island fringed by mangroves and open water at the confluence of Lyons Bay, Donna Bay, and Venice Inlet. Construction of the GIWW separated Snake Island from the remaining island, which today is called Turner Key. The dredged material on Snake Island predominately consists of fine sands with a small amount of shell fragments (Figure 28).

4.01 Vegetation. With the exception of the Bird Colony Islands, the existing vegetation within the upland and wetland fringe areas on the project disposal islands consists primarily of exotic nuisance species including Australian pines (*Casuarina equisetifolia*), Brazilian pepper (*Schinus terebinthifolius*) and carrotwood (*Cupaniopsis anacardioides*). The Bird Colony Islands consist of primarily mixed-mangrove islands that serve as bird colony nesting sites.

On Big Edwards Island, few native plants have survived the encroachment of exotic species including the shade-tolerant rouge plant (*Rivina humilis*), cabbage palm (*Sabal palmetto*), Florida privet (*Forestiera segregata*), corky passionvine (*Passiflora suberosa*), and moonvine (*Ipomoea alba*). In addition, there are scattered mangroves surrounding the island fringe. At the low, level, southern end of this island, a temporary cover of rye grass (*Iolium perenne L.*) appears to have been planted and possibly maintained at certain times of the year.

The perimeter of Skiers' Island is dominated by a mixed-mangrove fringe including red (*Rhizophora mangle*), black (*Avicennia germinaus*), and white (*Laguncularia racemosa*) mangroves and buttonwoods (*Conocarpus erecta*). Within the interior portion of the island, a few small areas of native plants exist that have survived the increasing shade of the Australian pine and carrotwood including native rouge plants, corky passionvine, moonvine, and prickly pear cactus (*Opuntia* spp.).

The wetlands surrounding the uplands on the Jim Neville Marine Preserve are in fairly good condition. These areas have a wide diversity of wetland native vegetation and community types including a mix of mangrove swamps and a diverse expanse of saltwater marshes, with some encroachment of Brazilian pepper. There are virtually no native trees in the canopy or subcanopy and only scattered Florida privet and saltbrush (*Baccharis halmifolia*).

The Palmer Point Park project area has an intact wetland fringe, which is relatively high in diversity and quality and contains white, black and red mangroves with some encroachment of Brazilian pepper. There are very few nuisance species in the saltgrass (*Distichlis spicata*) meadow or the salt flat marsh dominated by saltwort (*Batis maritima*), sea purslane (*Sesuvium portulacasturm*), and sea blite (*Suaeda linearis*). In addition, the seagrass beds surrounding the island appear to be relatively dense. Within the upland areas, a few natural native plant communities exist including the Florida privet, wax myrtle (*Myrica cerifera*), and various shrubs of this maritime hammock.

Vegetation on Snake Island includes several established mangroves that are remnants of the original mangrove island prior to the dredging of the GIWW. Within the upland areas of the island there are virtually no native species remaining.

4.02 Threatened and Endangered Species. Through coordination, the USACE and the U.S. Fish and Wildlife Service (USFWS) have identified the piping plover (*Charadrius melodus*), the West Indian manatee (*Trichechus manaatus*), the loggerhead sea turtle (*Caretta caretta*), the green sea turtle (*Chelonia mydas*), and the hawksbill sea turtle (*Eretmochelys imbricata*) as occurring in the vicinity of the project area.

Sea turtle nesting has not been documented on any of the proposed project disposal islands. Therefore, it is highly unlikely that turtles use any of these islands for nesting, given the location and availability of sandy beach areas.

Habitat for the Western Indian manatee is located throughout the project area, particularly near areas of seagrasses located near several of the project disposal islands. It is anticipated that during the project construction phase, the "Standard Manatee Conditions" will be followed as stated in the project permit issued by the Florida Department of Environmental Protection.

Finally, foraging habitat for the piping plover includes tidal flats, as found in the vicinity of both Palmer Point Park and Jim Neville Marine Preserve. Therefore, the protection or creation of tidal flat areas as part of the proposed project would be beneficial to this listed species.

4.03 Fish and Wildlife Resources. One of the major goals for this ecosystem restoration project is to restore and create additional fish and wildlife habitat. Existing resources within the project area supporting fish and wildlife included fisheries, tidal flats and bird habitats.

Within the project area, existing mangroves and seagrass meadows provide some habitat for juvenile fisheries. However according to the SBNEP's Comprehensive Conservation and Management Plan for Sarasota Bay, declines in the water quality of the bay and the loss of shallow water habitats associated with these types of habitat over the last several decades has reduced the available habitat for these fisheries. The proposed project aims to improve water quality through shoreline stabilization of the project disposal islands and increase the amount of shallow water habitat available for juvenile fisheries.

Existing salt flats, currently found on the Jim Neville Marine Preserve and Palmer Point Park, should be preserved or created as part of this project to protect this type of rare and productive habitat for the base of the food chain. These areas also serve as potential foraging habitat for many types of native and migratory birds.

The project area provides existing habitat, nesting areas, and foraging areas for a variety of birds. In addition, the project area provides seasonal habitat for migratory birds. The existing mangroves provide the highest quality habitat for these birds. However, due to the loss of mangroves and other native species, some birds have adapted to nesting in lesser quality habitat of nuisance species such as the Australian pines. The National Audubon Society has been performing nesting surveys for the last several years on several of the project disposal islands and a more detailed discussion is provided in the *Sarasota Bay Ecosystem Restoration Report*. The largest nesting activity has been identified on the Bird Colony Islands, which includes a variety of bird species. Within the last three years, the following state-listed species of special concern have been identified nesting on the Bird Colony Islands: the brown pelican (*Pelecanus occidentalis*), the snowy egret (*Egretta thula*), the little blue heron (*Florida caerulea*), the tri-colored heron (*Egretta tricolor*), the reddish egret (*Dichromanassa rufescens*), and the American oystercatcher (*Haematopus palliatus*).

4.04 Coastal Barrier Resources. Two designated units of the Florida Coastal Barrier Resource System are located in the vicinity of Sarasota Bay and the project disposal islands. These designated units include Casey Key (#P22) and Venice Inlet (#71P). Both the Jim Neville Marine Preserve and Palmer Point Park fall within the boundaries of the #P22 designated COBRA unit. Snake Island falls within the boundary of the #71P designated COBRA unit. The designated units of the Florida Coastal Barrier Resource System are protected under the Coastal Barrier Resources Act, PL 101-591. However, in accordance with Section 6(A) of the Act, projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats, including acquisition of fish and wildlife habitats and related lands; stabilization projects for fish and wildlife habitats; and recreational projects are consistent with the purposes of this Act. The proposed ecosystem restoration of the project disposal islands is consistent with the purposes of this Act and will provide a ecological benefit to these coastal resources.

4.05 Water Quality. A more detailed discussion of the existing water quality is provided in the *Sarasota Bay Ecosystem Restoration Report.* Sarasota Bay was designated as a priority water body by the US Environmental Protection Agency in Section 320 of the Clean Water Act, as amended in 1987. Sarasota Bay has also been designated as a Outstanding Florida Water. Sarasota Bay has been identified as a Class II water body except for the area directly east of the GIWW in Sarasota County, which is designated as a Class III water body. Declines in water quality in Sarasota Bay have been identified as a significant issue because of the impact of water quality on seagrass habitat and fisheries productivity. The primary pollutants of concern are nutrients and toxic substances including heavy metals and pesticides. Sources of nutrient and toxicant loadings into the bay come from stormwater runoff, sewage treatment plant wastewater discharges, septic tanks, and rainfall.

Sarasota County has several programs and efforts in place to help monitor and improve the water quality of the bay. The County and four co-permittees have an U. S. Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) permit to operate a Municipal Separate Storm Sewer System (MS4) for stormwater discharges. The permit compliance program includes, but is not limited to:

1) operation and maintenance of structural controls and storm water collection system;
2) construction site runoff program that operates through requirements in the County's Land Development Regulations;
3) operation and maintenance of public streets, roads and highways;
4) ensuring flood control projects comply with state storm water quality requirements;
5) identification, monitoring, and control of discharges from municipal waste treatment facilities not covered by the NPDES storm water permit;
6) control of pollutants related to application of pesticides, herbicides, and fertilizers through public education, applicator certification requirements, and an integrated pest management program for all County facilities;
7) illicit connections and illegal dumping regulatory programs that operate through County Ordinance, field screening of outfalls, industrial inspections, and a 24-hour on-call investigative staff and;
8) industrial and high risk runoff inspection program.

In addition to the NPDES permit compliance, Sarasota County has a program to encourage acquisition of plant wastewater systems so that flows can be treated at state-of-the-art plants. About 10% have been taken off line, many of which lie within the Phillipi Creek watershed, which is a top priority based on its environmental condition and connection to Sarasota Bay.

Sarasota County has a Septic to Sewer program that is geared toward replacing septic tanks and hooking residents up to central sewer. The first major project is the Phillipi Creek Project. Construction of the first phase should begin 2001-2002.

Sarasota County has an ordinance that regulates discharges to surface or ground water.

Lastly, the County has an ambient Water Quality Monitoring Program with sampling stations located throughout the waters of Sarasota County. The data generated from this program are analyzed to help identify water quality trends in the bay.

Big Edwards Island, Skiers' Island, and the Bird Colony Islands are all located in Roberts Bay. According to the Florida Department of Environmental Protection (FDEP) 305(b) Data Report (1998), the status of Roberts Bay with regards to

chemistry, fish, standards, metals, and biology is classified as “fair”. Most water quality parameters in Roberts Bay are designated as “stable”. However, this information also indicates that the turbidity levels, the dissolved oxygen, and the total phosphorus have been degrading in the past few years.

The Jim Neville Marine Preserve and Palmer Point Park are located in the Upper Little Sarasota Bay. The FDEP 305(b) Data Report (1998) reports the status of this area with regards to chemistry, fish, standards, metals, and biology is classified as “fair”. This information also indicates that the following water quality parameters have been degrading over the last few years: turbidity, secchi depth, and total phosphorus.

Snake Island is located in the Lower Little Sarasota Bay area. According to the FDEP 305(b) Data Report (1998), the status of this area with regards to chemistry, fish, standards, metals, and biology is classified as “good”. The only water quality parameter that has been degrading for the past few years in this portion of the bay is turbidity.

4.06 Aesthetic Resources. Sarasota Bay is bordered primarily by residential developments and some commercial land uses. Throughout the public involvement process, many homeowners have stated that the aesthetic value of these disposal islands is important to them and should be a consideration in the selection of the Recommended Plan.

4.07 Recreation Resources. The primary recreational use of Sarasota Bay is “viewing it”, according to a public opinion survey by the SBNEP in the early 1990’s (SBNEP’s, *Sarasota Bay, The Voyage Reclaimed,* 1995). However, there are numerous other recreational uses of the bay, which include both active and passive forms of recreation. These recreation uses include boating, water-skiing, kayaking, swimming, wildlife observation (birding), and fishing.

Recreational fish resources include a variety of species including redfish (*Sciaenops ocellatus*), sea trout (*Cynoscion* spp.), jacks (*Seriola fasciata*), pompano (*Trachinotus carolinus*), black drum (*Pogonias cromis*), sheepshead (*Archosargus probatocephalus*), snook (*Centropomus* spp.), flounder (*Paralichthys albigutta*), and mangrove snapper (*Lutjanus griseus*).

Several of the project disposal islands, particularly Big Edwards Island, Skiers’ Island, and Snake Island, are used by the public regularly for picnicking and other activities. However, each of the islands has evidence of human activity except Bird Colony Islands. Skiers’ Island’s primary recreational use is water-skiing. The deep-cut channel surrounding the island is one of the few places in Sarasota Bay where water-skiing is feasible.

4.08 Navigation. The Gulf Intracoastal Waterway is adjacent to each of the project disposal islands. In addition, several other marked channels are located

throughout the project area to provide access to residential areas adjacent to the bay. The majority of the Intracoastal Waterway in the vicinity of the project disposal islands has been designated as “No-Wake” zones.

4.09 Cultural Resources. A cultural resources investigation was conducted for the proposed project and coordination with the State Historic Preservation Officer has been initiated. Prior to the dredging of the GIWW and the placement of disposal material, Big Edwards Island (Figure 29), the Jim Neville Marine Preserve (Figure 32), Palmer Point Park (Figure 33), and Snake Island (Figure 34) were all existing mangrove islands. The Bird Colony Islands (Figure 31) has always consisted of three small mangrove islands; however, erosion has reduced their size since the dredging of the GIWW. Prior to dredging, Skiers’ Island (Figure 30) was baby bottom.

The cultural resources investigation included research of soil survey maps for Big Edwards Island and Skiers’ Island; field surveys of Jim Neville Marine Preserve and Palmer Point Park; and survey and testing of archeological site 8So2336 on Snake Island. No significant cultural resources were identified on Big Edwards Island, Skiers’ Island, Jim Neville Marine Preserve or Palmer Point Park. Testing of site 8So2336 on Snake Island has indicated the site to be potentially eligible for inclusion on the *National Register of Historic Places.*

5.00 Probable Impacts of the Recommended Plans. For the Recommended Plans for each of the project disposal islands, this section will identify both the benefits and potential impacts associated with the action. A brief description of the Recommended Plans for each of the project disposal islands and a summary of the basis of their selection is presented below.

Big Edwards Island. Concept 4 (Figure 5) is the Recommended Plan for ecosystem restoration on Big Edwards Island. This concept provides improved and diverse fish and wildlife habitat through the use of a mix of upland restoration (1.7-acres), low marsh/mangroves (1.6-acres), high marsh (0.2-acres), and tidal lagoons (0.5-acres). The open water/tidal lagoon system also maximizes the "edge effect" of the adjacent low marsh and mangrove systems. To incorporate public concerns, this concept also maintains public access and use of the island and it enhances public use with a proposed natural foot trail along the upland areas and boardwalk across the marsh and open water systems. In addition, this concept provides potential opportunities for educational interpretive signage promoting and explaining these diverse habitats, which was also suggested at the public workshop held for this project. In response to public comments, the Recommended Plan maintains the existing upland area at the southern portion of the island where the majority of public access to the island occurs. In addition, the Recommended Plan maintains the eastern upland berm along the island and the existing mature mangrove fringe around the perimeter of the island to provide a visual buffer for homeowners located on either side of the island. Concept 4 is

also the least expensive concept for Big Edwards Island with a cost range between $650,000 and $1.10 million.

Skiers' Island. Concept 4 (Figure 9) is the Recommended Plan for Skiers' Island. This concept provides improved and diverse fish and wildlife habitat through the use of a mix of upland restoration (2.5-acres), low marsh/mangroves (1.8-acres), and tidal lagoons (1.0-acres). The open water/tidal lagoon system also maximizes the "edge effect" of the adjacent low marsh and mangrove systems, as well as providing an opportunity for water to circulate through the island. Concept 4 allows for the continued use of the deep-water channel surrounding the island for water skiing. In addition, the upland restoration area proposed at the northern end of the island would allow for public access for passive recreational uses. As identified through public comment, no structural recreational facilities are provided with this concept, instead the focus of this concept is purely ecological restoration. Concept 4 is the most expensive concept evaluated for Skiers' Island. This is primarily a result of the extent of tidal lagoons proposed, which, as discussed above, will provide a significant benefit to the new and existing habitat surrounding this project. The total project cost for this concept is between $550,000 and $850,000.

Bird Colony Islands. The Recommended Plan for the Bird Colony Islands is to provide shoreline armoring along the Intracoastal side of the islands to prevent further erosion. No earthwork is proposed on the islands. The Recommended Plan protects the existing critical bird nesting habitat that has been documented on these islands. The total project cost for the proposed work is estimated to be $17,000.

Jim Neville Marine Preserve. Concept 5 (Figure 14) is the Recommended Plan for Jim Neville Marine Preserve. This concept provides improved and diverse fish and wildlife habitat through the use of primarily low marsh/mangroves (17.6-acres) and tidal lagoons (7.9-acres), with some opportunity for upland restoration (2.0-acres) on the higher elevation areas of the island. The open water/tidal lagoon system maximizes the "edge effect" of the adjacent low marsh and mangrove systems, as well as providing an opportunity for water to circulate between the northern and southern portions of the island. The Recommended Plan also minimizes the impacts to the existing mangrove systems and unique saltern areas found on the island, while optimizing the use of low marsh areas to recreate the opportunity for sheet flow across the island during high tides. Finally, the Recommended Plan will be successfully independent of any decision regarding the opening/closing of nearby Midnight Pass. The total project cost for Concept 5 is estimated between $2.50 million and $4.05 million. This range of costs is close to two of the other proposed concepts.

Palmer Point Park. Concept 3 (Figure 17) is the Recommended Plan for Palmer Point Park. This concept provides the creation of low marsh/mangroves (3.0-acres) in the project area and will benefit from the opportunity of diversity of the

adjacent upland areas in the park. The Recommended Plan minimizes impacts to the existing mangroves and salterns located adjacent to the project site. The Recommended Plan will result in minimal maintenance and the elimination of the tidal lagoon provided in some of the other concepts will reduce the potential for stagnant water and therefore mosquitoes. Concept 3 is one of the least expensive concepts evaluated for Palmer Point Park. The total project cost is estimated to be between $250,000 and $450,000.

Snake Island. Concept 4 (Figure 22) is the Recommended Plan for ecosystem restoration on Snake Island. This concept provides improved and diverse fish and wildlife habitat through the use of a mix of upland restoration (0.9-acres), and low marsh/mangroves (0.9-acres). In addition, the Recommended Plan provides for additional acreage to the island through the creation of a low marsh reclamation area (1.4-acres) on the west side of the island. To address public concerns, the Recommended Plan also provides a large upland enhancement area accessible on the east side of the island for public use. The Recommended Plan also provides soft-shore stabilization and additional mangroves to reduce the on-going erosion. The Recommended Plan maintains the unconsolidated shore used by the public on the southern end of the island and provides an opportunity to extend this area to the eastern side of the island. The estimated costs for each of the concepts evaluated for Snake Island are fairly close. Therefore, the total estimated project cost for the Recommended Plan (between $200,000 and $350,000) is comparable to the costs of the other concepts for this island.

5.01 Vegetation. The most significant impact to vegetation on each of the project disposal islands as a result of the Recommended Plans is the removal of nuisance species including, but not limited to, Brazilian Pepper, Australian pine, and carrotwood. However, as a result of construction activities some of the few remaining desirable species, particularly in the upland areas, will be impacted. To maximize the benefit of the exotic removal, the restoration of existing habitat or creation of new habitat will be accomplished through the installation of many of the desirable species impacted as well as other desirable species to create a diverse plant community. Planting of desirable species will also help with controlling nuisance species by creating competition in the newly disturbed soils. Upland plantings should include a diverse mix of subtropical hardy native trees and shrubs. Wetland plantings should include mangrove species and high and low marsh species. The wetland plants should be planted on close centers as liners or bare root for quick coverage and optimum competition. Detailed planting plans for each island will be completed during the design phase of the project. Table 6 provides a general list of desirable plant species that will be considered for each of the various habitats.

Table 6. Proposed Plant Species List

Upland Trees	
Busera simaruba	Gumbo limbo
Celtis laevigata	Sugarberry
Coccoloba uvifera	Seagrape
Coccoloba diversifolia	Pigeon Plum
Conocarpus erectus	Green buttonwood
Diospyros virginiana	Persimmon
Juniperus silicicola	Southern Red Cedar
Persea borbonia	Red bay
Quercus myrtifolia	Myrtle oak
Quercus virginiana	Live oak
Sabal palmetto	Cabbage palm
Zanthoxylum clava-herculis	Hercules club
Upland Shrubs	
Callicarpa americana	Beautyberry
Chrysobalanus icaco	Coco plum
Chrysophyllum oliviforme	Satinleaf
Dodonaea viscosa	Varnish leaf
Erythrina herbacea	Carol beam
Forestiera segregata	Wild olive
Myrcianthes fragrans	Simpson stopper
Pithecellobium keyense	Blackbead
Psychotria nervosa	Wild coffee
Randia aculeata	White Indigo Berry
Scaevola plumieri	Inkberry
Serenoa repens	Saw palmetto
Sophora tomentosa	Necklace pod
Suriana maritima	Bay cedar
Wetland – High and Low Marsh Species	
Avicennia germinans	Black mangrove
Rhizophoraceae mangle	Red mangrove
Laguncularia racemosa	White mangrove
Conocarpus erectus	Buttonwood
Spartina bakeri	Sand cordgrass
Spartina patens	Marshhay cordgrass
Spartina alterniflora	Smooth cordgrass
Juncus roemerianus	Black needle rush
Scirpus spp.	Bulrush
Batis maritima	Sea pickle
Sesuvium spp.	Seapurslane
Paspalum vaginatum	Seashore paspalum
Distichlis spicata	Saltgrass

To maximize the benefit of this project, controlling the regeneration of nuisance species will be facilitated through the following:

- Grade changes resulting in the removal of substrate will remove the root stock and seed source from these species and will result in incompatible habitat creation for exotics.
- Grade changes resulting in the addition of fill will cover over seed sources preventing germination of seeds.
- Use of composted shredded (tub-ground) woody vegetation will act as a thick mulch layer physically preventing seed germination. Material used from the nuisance species must be composted to prevent seed germination in the mulch.
- Use of applied herbicides (injection, frill and girdle, or cut stump application) may be used to control Australian pines and Brazilian pepper in specified areas.
- Finally, follow-up treatment and monitoring will be necessary.

For each of the project disposal islands, it is anticipated only minor and temporary construction related impacts will occur to desirable wetland vegetation during construction through the use of best management practices such as the use of silt fences, turbidity barriers, and controlled construction access.

Big Edwards Island. The installation of high marsh species such as knotgrass (*Paspalum* ssp), marsh-hay (*Spartina patens),* and saltgrass (*Distichulus)* will improve the habitat functions of this island. These efforts will increase the amount of cover of high marsh species that are almost non-existent in the Sarasota Bay area. The increase in acreage of mangroves is another positive effect of the project and will increase the fisheries habitat value as a result of the project. The Recommended Plan increases the open water edge effect of the mangroves that typically improves the function and value of mangroves.

Construction access is anticipated to occur from the western side of the island. This location is adjacent to a channel that is not vegetated with seagrasses and therefore no impacts to adjacent seagrasses are proposed. Grade changes in the northwest portion of the island will occur adjacent to existing mangroves. As such, occasional individual mangroves will be impacted to provide a consistent elevation between planted mangroves and the existing vegetation. Where practical, design efforts will identify these locations and adjustment in species type will minimize impacts while providing an opportunity for exchange of water during normal tidal events. Sheet flow of tidal waters is beneficial to the quality of habitat.

Seagrasses adjacent to the east of Big Edwards Island will not be negatively impacted by the Recommended Plan. The installation of temporary erosion control measures during construction and permanent erosion control measures will prevent impacts to the seagrasses from continued erosion of the adjacent

shoreline. The seagrasses to the south of the island may experience minor impacts from the existing unconsolidated shore. In order to provide access to upland areas and to take advantage of existing conditions, the upland area on the southern portion of the island will remain. However, through upland restoration plantings, all efforts will be made during the design process to include vegetation and maintenance commitments that will minimize erosion.

Skiers' Island. The proposed locations of upland restoration will not impact the existing mangroves. The Recommended Plan reduces the steep slopes of disposal material adjacent to the existing mangroves. The elimination of the upland disposal material and nuisance species adjacent to the existing mangroves will have a positive impact on the existing mangroves.

The existing mangroves are currently inundated from the outside edge of the island. The proposed open water connections to the east, west, and north will have a positive effect on the function and value of the proposed and existing mangroves. The increased inundation improves the fisheries habitat value of the mangroves. Low marsh habitat will be initially installed and will create nursery habitat for fish and estuarine, inter-tidal invertebrates.

Historic dredging adjacent to Skiers' Island and the subsequent placement of fill on the Island precludes much habitat for seagrasses. The limited amount of seagrass habitat present will be impacted in a positive manner from the proposed activities. The Recommended Plan includes mangrove coverage around more than 90% of the island, thus reducing the opportunity for continued erosion. The reduction in erosion should improve water quality and reduce siltation over seagrasses from migrating disposal material.

Bird Colony Islands. The proposed activities for the Bird Colony Islands are limited to stabilization. It is anticipated that stabilization will occur through the placement of rubble rip-rap and will have no negative impacts on the nesting habitat provided by the mangroves. As a result of the wave energy, which has caused erosion of the mangrove areas, there are no seagrasses on the edge of the small islands. Therefore, placement of the stabilization material will have no impact on seagrasses.

Jim Neville Marine Preserve. The placement of material on the island created a unique habitat between the upland nuisance species and the mangrove band around the island. This habitat is quite similar to natural salterns in other coastal areas. Typically, the area becomes inundated with the tide and water is entrapped. As the tide ebbs, the trapped water evaporates and the salinity greatly increases. This increased salinity prevents propagation of seeds and the growth of most vegetation. What does occur is rapid blooms of single cell algae. The algae provide a food source for fiddler crabs (*Uca uca*) and other invertebrates. This unique habitat will not be impacted by the proposed activities.

The mangrove bands that were left after placement of the disposal material will not be negatively impacted by the Recommended Plan. Positive impacts will occur as a result of increased mangrove acreage as well as increased contact with the restored mangrove areas by tidal flows. The increased function and value of the multiple channel connections included in the Recommended Plan compensates for the temporary, construction-related impacts to mangroves. The existing mangroves as well as the planted mangroves will benefit from sheet flow of tidal water across the island during high tide. It is anticipated the designs provide an opportunity for the sheet flow from all directions, depending on the prevailing tides and/or winds.

The temporary impacts will include removal of mangroves associated with the channel connections, construction access, and construction of the low marsh/mangrove planting areas. The construction access is necessary to build the Recommended Plan as deep water areas do not exist adjacent to the proposed construction areas.

Impacts to the adjacent seagrass habitat will occur. These impacts will be both positive and negative. The negative impacts will occur as a result of tidal channel connections and construction access. Where practical, the proposed location for the tidal channel will be the same location used for access. Additional excavation may occur in the grass flats adjacent to the island to allow ingress and egress of construction equipment and removal of the excavated material. Exact locations will be identified during the design phase and all efforts will be made to determine locations that will provide long-term benefits through increased circulation. The positive benefits will be improved water quality as a result of nutrient assimilation by the wetland vegetation as well as trapping suspended sediments.

Palmer Point Park. This site is somewhat different than the other areas as it is part of a contiguous peninsula, not an island. The Recommended Plan, which will create all low marsh and mangrove habitat in the project area, considers the presence of nuisance species on the adjacent uplands. As a result, the loss of upland habitat is an unavoidable impact, but the proposed habitat will have significant benefits. The opportunity for restoration of the uplands on the adjacent properties will eventually provide a mosaic of habitat improving the total ecological value of Palmer Point Park.

The mangroves will provide a positive impact to the adjacent habitat by increasing nesting opportunities, improving water quality, and increasing fisheries habitat. The mangroves would benefit from increased sheet flow of tidal waters. As with Jim Neville Marine Preserve, open sandy areas of high salinity that are similar to natural salterns are present. The vegetative value, while considered high, is limited to the rapid algal blooms. The Recommended Plans would have no impact to this community. Detailed analysis during design and careful construction techniques will be required to avoid impacts to this unique habitat.

The Recommended Plan precludes the use of open water lagoons that were considered in other concepts. However, preliminary analysis indicated the small area of open water opening to the bay would not have enough volume to provide high enough flow rates through the connection to existing open water areas. As such, the low flow rates would cause the opening to silt in and would create a stagnant water area of reduced water quality. This potential secondary affect would impact the function and value of the restored wetland.

Snake Island. Upland restoration will improve the habitat value and have a positive impact on the project area. The few existing mangroves present on the island will not be impacted by the Recommended Plan and the newly created low marsh/mangrove areas will improve the benefits of these mangroves to fish and wildlife resources.

The continued erosion of Snake Island has impacted adjacent seagrass beds. While few grasses are present within the nearby water, the proposed design will reduce the erosion and avoid additional impacts to seagrasses. The No-Action Alternative would continue to reduce water quality and eliminate existing mangroves.

The proposed low marsh area would have a positive impact on the fisheries habitat. The reclaimed area will be protected by soft-shore stabilization such as rubble rip-rap, sand filled fabric tubes, or other geotextile alternatives to reduce the high energy environment creating the current erosion.

5.02 Threatened and Endangered Species. Through a determination by U.S. Fish and Wildlife Service, it has been determined this project will have no negative impact on Threatened and Endangered Species. The piping plover, a federally threatened species, is found in the vicinity of both Palmer Point Park and the Jim Neville Marine Preserve and forages in tidal flats. Therefore, the protection or creation of tidal flat areas as part of the Recommended Plans for each site will be beneficial to this listed species.

Sea turtle nesting has not been documented on any of the project disposal islands and will not be impacted by any of the proposed alternatives. Habitat for the Western Indian manatee is located throughout the project area, especially in areas of seagrasses located near the islands. During the project construction, the “Standard Manatee Conditions” will be followed as stated in the project permit issued by the Florida Department of Environmental Protection. It is anticipated that following the conditions will help avoid impacts to the manatee as a result of implementation of the Recommended Plans.

5.03 Fish and Wildlife Resources. As discussed in Section 5.01, positive impacts to fish and wildlife resources will result from the ecological restoration of the project disposal islands through the removal of nuisance species and their habitat and the replacement by desirable upland and wetland species. In turn,

the increase in the acreage of the desirable species improves the function and value of the fisheries and bird habitat.

Temporary impacts will occur during construction. These impacts will be limited to adjustments in cover type and to construction access. While it is recognized a temporal loss in bird nesting habitat will occur, the long-term benefits of planting more desirable species will have a positive impact on the bird habitat.

Construction activities on the Bird Colony Islands are minimal. It is anticipated that stabilization will occur through the placement of rubble rip-rap and will have no negative impacts on the nesting habitat provided by the mangroves. In addition, construction activities for this island will be minimized during the most active nesting season.

Without the implementation of this project, there would continue to be negative impacts as a result of erosion, nuisance species seed dispersal, and reduced water quality.

5.04 Coastal Barrier Resources. As identified in Section 4.04, two designated units of the Florida Coastal Barrier Resource System are located in the vicinity of the project disposal islands. However, in accordance with Section 6(A) of the Act, projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats, including acquisition of fish and wildlife habitats and related lands; stabilization projects for fish and wildlife habitats; and recreational projects are consistent with the purposes of this Act. The proposed ecosystem restoration of the project disposal islands is consistent with the purposes of this Act and will provide an ecological benefit to these coastal resources.

5.05 Water Quality. Overall, the Recommended Plans will have a long-term positive effect on water quality within the bay because of the reduction of erosion through mangroves, marshes and other shoreline stabilization methods. This vegetation will also help to assimilate nutrients, which will also improve water quality.

Temporary impacts to water quality will occur during construction. Best management practices will be incorporated to reduce impacts. Mixing zones will be established for the work areas. No increase in suspended sediments will be allowed outside of the mixing zones. Creative concepts such as the use of organic fluids in the hydraulic systems of earthmoving equipment will reduce the chance of accidental impacts to water quality.

5.06 Aesthetic Resources. Each of the project areas and Recommended Plans involve similar impacts to aesthetics.

The visual look of the proposed project islands will change as a result of the project. Newly planted vegetation will require time to mature to the existing heights of the exotic species. However, the majority of these islands have existing mature vegetation, particularly mangroves, which will remain intact with the implementation of the project. Many of these mangrove areas extend up to 20 feet high providing quite a visual buffer around the island.

The public involvement process revealed that “beauty is indeed in the eye of the beholder”. Personal differences exist regarding nuisance species, disposal islands, visual buffers, and recreational usage. A small portion of the public is adamant in the feeling that Australian pines are beautiful and should not be cut down. Disposal islands are visual landmarks for boaters while providing visual buffers for adjacent homeowners. Finally, several homeowners felt that increased recreational usage of the islands would be an aesthetic impact to their viewshed. Other members of the public indicated that the restoration of these disposal islands with native, desirable habitat would add to the beauty of the bay. In addition, the increase in species diversity would also improve their view of the bay.

On islands such as Big Edwards Island and Snake Island, for which viewshed seemed an important issue to members of the public, opportunities to minimize dramatic changes to the viewshed will be evaluated during the design phase of this project, including planting larger trees and a phased removal approach.

5.07 Recreation Resources. Impacts to the recreational value of the proposed project areas are limited. Design alternatives were considered to reduce impacts to recreation. Impacts to passive recreation will result from reduced access on some of the islands. During construction, recreation will be impacted as the islands will be considered construction sites and access by the public will be trespassing. This unavoidable, temporary impact will be mitigated through the increased recreational value associated with the pedestrian trail and small boardwalk on Big Edwards Island.

Through the public involvement process, a general consensus was achieved regarding the desire for recreation on the project disposal islands. Specifically, the public identified the importance of public access and use of Big Edwards and Snake Island.

The public also expressed the importance of the continued use of the deep-water channel surrounding Skiers' Island for water-skiing. As a result of the existing mangrove fringe around the island, recreational water-skiing will not be impacted from increased wave action. Through the public involvement process, it was also determined that water skiers preferred the leeward side of the island as a result of the wind break. Through upland restoration, vegetation will be installed that will eventually grow large enough to provide the same level of protection from the wind for the recreational skiers. The existing mature mangroves around the

island also provide a wind break. It is anticipated that changes in the vegetation will not impact the recreational value of the island.

Finally, the public identified the importance of limiting public use and access of the Jim Neville Marine Preserve and the project area of Palmer Point Park. These comments were considered and incorporated into the Recommended Plan for each island.

5.08 Cultural Resources. Project features of the Recommended Plan will impact archaeological site 8So2336. Project features, however, will mitigate adverse effects to the site. Beneficial uses of dredged material will help in the preservation of this site. A detailed mitigation plan will be worked out through consultation with the SHPO.

5.09 Cumulative Impacts. Cumulative impact is the impact on the environment which results from the incremental impact of the preferred action when added to other past, present, and reasonable foreseeable future actions (40 CFR 1508.7). The cumulative impact of the proposed action is the positive benefit of removal of the seed source of nuisance species, the improvement of water quality through erosion control, the continued increased production of fisheries resources as a result of increased habitat, and the increased habitat for birds.

6.00 Coordination. The U.S. Army Corps of Engineers, Jacksonville District Office furnished the U.S. Fish and Wildlife Service with an environmental scoping letter (Appendix G) requesting completion of the development of the Fish and Wildlife Coordination Report (CAR) and the Section 7 consultation. In the Fish and Wildlife Coordination Act Report dated February 24, 2000, the USFWS supports the Sarasota Bay Section 1135 Ecosystem Restoration Feasibility Study. Coordination for the proposed action with the State Historic Preservation Officer in compliance with the National Historic Preservation Act of 1966, as amended, has been initiated.

7.00 Compliance with Environmental Statues.

National Environmental Policy Act of 1969

Environmental information on the project has been compiled and the Draft Environmental Assessment was made available for public review through public notice in compliance with 33 CFR Parts 335-338. These regulations govern the Operations and Maintenance of U.S. Army Corps of Engineers Civil Works Projects involving the Discharge of Dredged or Fill Material into Waters of the U.S. or Ocean Waters. This public coordination and environmental impact assessment complies with the intent of NEPA. The process will fully comply with the Act once the District Commander has signed the Findings of No Significant Impact.

Endangered Species Act of 1973

Consultation with the U.S. Fish and Wildlife Service was initiated in August 1999 for the purposes of Section 7 Coordination. By the letter dated February 24, 2000, the USFWS determined that there would be no impacts on any listed endangered species. This project was fully coordinated under the Endangered Species Act; therefore, this project is in full compliance with the Act (Appendix G).

Fish and Wildlife Coordination Act of 1958

The project has been coordinated with the U.S. Fish and Wildlife Service. It has prepared a Coordination Act Report for the project. Therefore, the project is in compliance with this Act (Appendix G).

National Historic Preservation Act of 1966, as amended (PL 89-665)

Archival research conducted for Big Edwards Island and Skiers' Island including analysis of soil survey data determined that there is little likelihood of sites being present. Archeological surveys completed at Jim Neville Marine Preserve and Palmer Point Park did not locate any significant cultural resources. Testing of archeological site 8So2336 on Snake Island determined that site is eligible for listing on the *National Register of Historic Places*. Coordination with the Florida State Historic Preservation Officer (SHPO) has been initiated. Consultation with SHPO will determine what is the appropriate mitigation measure for preservation of the archeological site on Snake Island.

Clean Water Act of 1972

Section 404(b)(1) (Appendix A). As the project is in tidal waters and adjacent to the Intracoastal Water Way, Section 10 of the Rivers and Harbors Act of 1899 will supercede Section 404(b)(1) for any Dredge and Fill activities associated with the project.

Section 401 of the Clean Water Act requires water quality certification for projects that may impact wetlands of the Untied States. Delegation for the section has occurred to the State of Florida through the Environmental Resource Permitting. By obtaining a permit through Florida Statute 343, water quality certification consistent with Section 401 will be provided.

Clean Air Act of 1972

No air quality permits would be required for this project. Therefore, this Act would not be applicable.

Coastal Zone Management Act of 1972

The project has been evaluated in accordance with Section 307 of the Coastal Zone Management Act (Appendix B). It has been determined that the project would have no unacceptable impacts and would be consistent with the Florida Coastal Zone Management Plan.

Farmland Protection Policy Act of 1981

No prime or unique farmland would be impacted by implementation of this project. This act is not applicable.

Wild and Scenic River Act of 1968

No designated Wild and Scenic river reaches will be affected by project related activities. This act is not applicable.

Marine Mammal Protection Act of 1972

Incorporation of the safe guards used to protect manatees during dredging and disposal operations will be implemented during construction; therefore, this project is in compliance with this Act.

Estuary Protection Act of 1968

The proposed project is located in a designated estuary, the Sarasota Bay Estuary. However, this estuary will not be adversely affected by project activities.

Federal Water Project Recreation Act, as Amended

There is no recreational development proposed for maintenance dredging or disposal. Therefore, this Act does not apply.

Resource Conservation & Recovery Act 1976(PL 94-580, 7 U.S.C. 100, et seq.)

This law has been determined not to apply, as there are no items regulated under this act being disposed of or affected by this project.

Toxic Substances Control Act of 1976,(PL94-469; U.S. C. 2601, et seq.)

This law has been determined not to apply, as there are no items regulated under this act being disposed of or affected by this project.

Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990

The proposed work is within two Coastal Barrier sites as prepared by the Department of Interior in the Report to Congress on the Coastal Barrier Resources System. However, in accordance with Section 6(a) of the Act, projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats, including acquisition of fish and wildlife habitats and related lands, stabilization projects for fish and wildlife habitats, and recreational projects are consistent with the purposes of the Act. The rehabilitation of the disposal islands is therefore exempt.

E.O. 11990, Protection of Wetlands

No wetlands will be affected by project activities. This project is in compliance with the goals of this Executive Order.

E.O. 11988, Flood Plain Management

No activities associated with this project will take place within a floodplain; therefore, this project is in compliance with this Executive Order.

Magnuson-Stevens Fishery Conservation and Management Act

This Act requires that Essential Fish Habitat (EFH) be considered when undertaking any dredging project. The proposed action would not have an adverse impact on EFH or Federally managed fisheries. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

8.00 Public Involvement. The public involvement process for this study incorporated a three-phased approach to informing the community, identifying community concerns, and achieving consensus. The three phases included several one-on-one/small group meetings with identified interested parties of the community; media contact and public notification prior to public workshops; and advertised public workshops.

The public involvement process for this study was developed to address the concerns of the public, who through past County ecosystem restoration efforts, have indicated a desire to be informed and involved in these types of projects.

A total of five public workshops were held for this project. Appendix H provides detailed information from each of these workshops including the press release and public notification letters for the workshops; mailing lists for each workshop; transcripts, summaries, and written comments received at these workshops; related newspaper articles; and workshop materials.

The first public workshop was held on October 28, 1999 at Sarasota High School in Sarasota, Florida. The purpose of this workshop was to introduce the Sarasota Bay Ecosystem Restoration Feasibility Study and the Section 1135 process to the public, as well as to identify issues that were important to the public in respect to past restoration efforts in and around the bay. During the second half of the meeting, the public was given the opportunity to comment on the project through oral comments and questions. A summary of these comments is provided in Section 6.0 of the *Sarasota Bay Ecosystem Restoration Report*.

The next three workshops were held in February 2000 to present, discuss, and receive comments on the preliminary restoration concepts developed for the project. Three separate workshops were held to break the project disposal islands into geographical groups. In addition, surveys were provided to the participants to identify their primary recreation and restoration objectives of the proposed project.

The format of these workshops included a brief summary of the background, need, and authorization of the project followed by the presentation of issues of concern the project team had identified through previous public input. Next, the existing conditions of the islands were presented along with three preliminary restoration concepts followed by a short public comment period. The second portion of the meeting included a break-out group session that gave the

participants an opportunity to draw their own ideas and concepts or modify the concepts that had been presented. Additional issues of concern were also identified during this process. Finally, the workshop ended with the presentation of the Break-Out Groups' various concepts and issues. At the conclusion of the workshop, time was allowed for additional public comments and questions. A detailed summary of these three workshops and the comments received are included in Section 6.0 of the *Sarasota Bay Ecosystem Restoration Report*.

The final public workshop was held on May 17, 2000 at the Pine View School in Osprey, Florida. The workshop was attended by 26 members of the public. The purpose of this workshop was to present the concepts developed from the public input from the last public workshops and to present the Recommended Plan for each island. In addition, the public was given the opportunity to comment through both oral and written comments. A detailed summary of this workshop and the comments received are included in Section 6.0 of the *Sarasota Bay Ecosystem Restoration Report*.